

In the Claims

F₁ 1. (Four times amended) A method for the biological production of polyhydroxyalkanoate containing 3-hydroxyhexanoate [comprising growing a transgenic] in E. coli [having at least one bacterial transgene encoding a PHA polymerase incorporating C₆ substrates and at least one enzyme selected from the group consisting of] expressing a phbA thiolase gene encoding an enzyme that converts butyryl-CoA and acetyl CoA to beta-ketohexanoyl-CoA, a phbB reductase gene that encodes an enzyme that converts beta-ketohexanoyl-CoA to beta-hydroxyhexanoyl-CoA, and a phbC polymerase gene that encodes an enzyme that polymerizes 3-hydroxybutyryl CoA, the improvement comprising expressing in the E. coli a D-specific enoyl-CoA hydratase and β -hydroxyacyl-ACP-coenzymeA transferase, and providing feedstocks for the transgenic E. coli, wherein the enzymes are expressed in a sufficient amount to produce [production of] polyhydroxybutyrate-co- polyhydroxyhexanoate [by the transgenic E. coli occurs].

F₂ 6. (Two times Amended) The method of claim 1 wherein the phbC polymerase gene encoding a PHA polymerase enzyme that incorporates C₆ substrates is incorporated into the bacterial chromosome.

F₃ 7. (Twice amended) The method of claim 1 wherein the phbC polymerase gene is from a bacteria selected from the group consisting of *Aeromonas caviae*, *Comamonas testosteroni*, *Thiocapsia pfenigii*, *Chromatium vinosum*, *Bacillus cereus*, *Nocardia carolina*, *Nocardia salmonicolor*, *Rhodococcus ruber*, *Rhodococcus rhodocrous*, and *Rhodospirillum rubrum*.

AMENDMENT AND RESPONSE TO OFFICE ACTION

Please cancel claims ~~8~~ and 9.

F4 10. (Three times Amended) The method of claim [9] 1 wherein the [phaJ transgene] genes encoding the D-specific enoyl-CoA hydratase and β -hydroxyacyl-ACP-coenzymeA transferase [is] are isolated from a bacterium selected from the group consisting of *R. eutropha*, *Klebsiella aerogenes*, *P. putida*, and *Aeromonas caviae*.

Please cancel claims ~~14-13~~.

F5 14. (amended) The method of claim 11 wherein the [organism] *E. coli* expresses a broad range reductase that is active on C₆ substrates.

F6 15. (twice amended) The method of claim 11 wherein the [organism] *E. coli* expresses a polymerase that accepts 3-hydroxyhexanoyl CoA and 3-hydroxybutyryl CoA.

F7 16. (amended) The method of claim 11 wherein the [organism] *E. coli* expresses a thiolase accepting acetoacetyl CoA.

17. (amended) The method of claim 11 wherein the [organism] *E. coli* expresses an enzyme selected from the group consisting of thiolases specific for 3-ketohexanoyl CoA, reductase active on 3-ketohexanoyl CoA, and 3-hydroxyhexanoyl CoA.

18. (amended) The method of claim 8 wherein the [organism] *E. coli* expresses one or more fatty acid biosynthetic enzymes.

19. (amended) The method of claim 18 wherein the fatty acid biosynthetic enzymes [are enzymes converting] convert acyl ACP to acyl CoA.

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AMENDMENT AND RESPONSE TO OFFICE ACTION

20. The method of claim 19 where the enzymes are selected from the group consisting of ACP-CoA transacylase, acyl ACP thioesterase, and acyl CoA synthase.

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21. The method of claim 20 wherein the enzymes are acyl ACP thioesterase and acyl CoA synthase.

Please cancel claims ~~22-27~~ and 31.